

### Remarks

Claims 1-24 are pending in this Application. With this paper, Claims 1 and 13 have been amended to further describe the claimed invention in a manner supported by the as-filed specification. No new matter is included with the amendments provided herewith.

In the Office Action mailed May 23, 2007, independent Claims 1, 13 and 24 were rejected under 35 U.S.C. 103(a) as being unpatentable over Matthews (U.S. Patent No. 3,838,998' herein "Matthews") in view of Matsubara et al. (U.S. Publication No. 2002/0004111; herein "Matsubara"); Claim 24 was further rejected in view of Veatch (U.S. Patent No. 2,978,340). Obviousness is said to be because "it would have been obvious to one of ordinary skill in the pertinent art at the time the invention was made to use a low alkali metal oxide content of Matsubara et al. in the process of Matthews et al. in order to enhance the chemical resistance of microspheres, as taught by Matsubara et al." No factual basis for the assertion that a low alkali metal oxide content of Matsubara could be combined in the process as taught by Matthews is provided. Instead, the statement is little more than a conclusory remark that offers no guidance in order to appropriately reply. In the Advisory Action mailed September 19, 2007, it was reiterated that "the combination of the two references were based on the teaching of Matsubara regarding the alkali metal oxide content, specifically that a lower alkali metal oxide content is desired to affect the chemical resistance of the microsphere." Again, no factual basis for the assertion of obviousness was provided in order for Applicant to provide a suitable response. Indeed, the underlying factual inquiries for an obviousness analysis were overlooked in both the Office Action mailed May 23, 2007, and the Advisory Action mailed September 19, 2007; underlying factors must include findings of fact involving the scope and content of the prior art, the level of ordinary skill in the prior art, the differences between the claimed invention and the prior art and objective evidence of nonobviousness. Several Federal Circuit cases have further identified factors to be considered in determining a level of ordinary skill in the art (see. *Envtl. Designs, Ltd v. Union Oil Co.* [Fed. Cir. 1983] and *Orthopedic Equip. Co. v. All Orthopedic Appliances, Inc.* [Fed. Cir. 1983]). Applicants respectfully request such identification be made in order to provide an appropriate response.

Applicants further point out that Matthews specifically teaches a process “to form thicker walled microspheres of larger size and higher quality” (Abstract), such that “a high temperature glass former[naturally occurring, thermally bloatable soda feldspar] . . . upon solution in the low temperature glass former [sodium silicate] substantially increases the viscosity and surface tension of the resultant glass to allow formation of large micro-spheres” (Col. 2, ll. 35-37; Col. 2, l. 66 to Col. 3, l. 2) by “successive expansion and collapse of the glass shell to form spheres of predetermined size and wall thickness and relatively perfect structure” (Col. 3, ll. 14-17). Matthews emphasizes, “if the viscosity of the melt be increased at the expense of some homogeneity and bubble strength, it might be possible to produce bubbles of somewhat larger size, possibly varying by a factor on the order of 2” (Col. 4, ll. 41-46); “Our process and materials optimize micro-spheres of large size having strengths approaching theoretical limits” (Col. 5, ll. 40-47). Based on such explicit and calculated teachings of Matthews, Applicants find that there is no obvious reason to modify Matthews composition in any way, particularly to lower alkali metal oxide content. Matthews already teaches “a relatively perfect structure” of “great strength” when combining an admix of sodium silicate and soda feldspar with colloidal fumed silica and sodium carbonate and other fluxing agents to make larger microspheres (Col. 5, l. 59 to Col. 6, l. 2). Moreover, the alkali metal oxide content in Matthews is predetermined by the composition of the admix. As pointed out previously, Matthews makes particular emphasis in a fact that the soda oxides content (i.e., sodium oxide content, which is an alkali metal oxide) is 20% by weight (Col. 6, ll. 54-44). Moreover, Matthews specifically points out a particular need for sodium carbonate or soda ash “for the addition of sodium oxide in the glass composition to aid in ‘stirring’ the glass during melting” (Col. 16, ll. 6-9; emphasis added). Thus, Matthews relies on a precursor composition that has underwent many modifications to accommodate the desired materials, especially for use in commercial spray dryers—a method that was particularly selected (and desired) because it is stated to be simple and economic. For such reasons, it is not an easy (or straightforward) task to simply “use a low alkali metal oxide content of Matsubara et al. in the process of Matthews et al.,” as suggested by the Examiner. Applicants can find no obvious teaching within Matthews, itself, especially because Matthews explicitly provides a required need for sodium oxide. Nor does there appear to be an obvious reason for one of

ordinary skill in the art to modify Matthews in a way that would prove counterproductive to his invention. Again, Applicants respectfully request the Examiner provide all the underlying factual inquiries for an obviousness analysis, including one that would show how Matthews would be able to use a negligible alkali metal oxide content of Matsubara, particularly in order to enhance chemical resistance of microspheres, and that the negligible alkali metal oxide content of Matsubara would be successful when used with the composition of sodium silicate and soda feldspar with colloidal fumed silica and sodium carbonate of Matthews. According to Matthews, this would not be possible. Moreover, it is not obvious from the teachings of Matsubara that merely reducing the alkali metal oxides content of Matthews with Matthews composition would either make suitable microspheres or ones that are chemically resistant. This is because, according to Matsubara, chemical durability (e.g., resistance) is not only a function of alkali metal oxides content, it is also a function of other elements such as  $\text{SiO}_2$ ,  $\text{B}_2\text{O}_3$  and  $\text{BaO}+\text{SrO}$  (e.g., para. [0011], [0023], [0024]), salts (para. [0053]-[0054]) as well as post-treatment methods (para. [0028]). For example, Matsubara requires a  $\text{B}_2\text{O}_3$  content to make “chemically durable” small glass microspheres, the  $\text{B}_2\text{O}_3$  content must be “in an amount of at least 3%” (para. [0027]). Matsubara then requires the boron be removed so that it doesn’t effect chemical resistance and reduce adhesion of the microsphere to the resin. Hence, it is obvious from Matsubara that not just one but many elements in combination are critical for determining chemical durability/resistance of the small microspheres. It is also incorrect to separate a compositional teaching from its method of making. Both Matthews and Matsubara explicitly and very specifically teach contradictory starting compositions that require very different methods of making to achieve different end products. This makes both references unpredictable with respect to each other—whereas some predictability is required for a showing of obviousness. The Examiner cannot assume that a teaching of one composition relying on a particular method could be translated to another composition that relies on an entirely different method of making. Factual evidence is required for a showing of obviousness. Applicants find that, based on the references themselves, neither Matthews nor Matsubara teach or suggest any suitable combination that is predictable or obvious; Matthews explicitly teaches away from small microspheres, requires a high alkali metal oxide content and a method to successively expand

and collapse bubbles with use of a furnace to form large microspheres (greater than 50 microns to 5000 microns). On the other hand, Matsubara explicitly teaches away from large microspheres, explicitly teaches away from having any alkali metal oxide content and requires a very different method by of making in which liquid droplets that can only reach a critical size are formed in order to create very small microspheres (maximum size of 30 microns). With such clear unpredictability between these reference teachings, one can find no suggestion or motivation to combine reference teachings that will afford any success, particularly in terms of Applicants' claimed invention. As such, the claimed invention is not obvious over Matthews in view of Matsubara. Applicants respectfully request the rejection for obviousness be removed.

Claim 24 is rejected by combining Matthews in view of Matsubara and Veatch, For the reasons set forth above, Applicants can find no reason to combine Matthews and Matsubara nor any suggestion that the combination would achieve any success. This lack of teaching is not overcome by combining with Veatch which is merely relied on for describing "a firing time of less than 20 seconds." As such, Applicants submit that Claim 24 is not obvious over Matthews in view of Matsubara and Veatch. Applicants respectfully request the rejection for obviousness be removed.

### **Conclusion**

Applicants respectfully submit that the Application for patent is in condition for allowance, and pursuant to the filing of this Amendment, Applicants earnestly seek allowance of the claims, as provided in the Listing of Claims beginning on page 3 of this paper. Should the Examiner have questions, comments, or suggestions in furtherance of the prosecution of this Application, please contact Applicants' representative at 214-999-4330. Applicants, through their representative, stand ready to conduct a telephone interview with the Examiner to review this Application if the Examiner believes that such an interview would assist in the advancement of this Application.

This paper is submitted concurrently with a Request for Continued Examination, a Petition for Extension of Time for two months and the appropriate fees. To the extent that any further fees are required during the pendency of this Application, including petition fees, the Commissioner is hereby authorized to charge payment of any additional fees, including, without limitation, any fees under 37 C.F.R. § 1.16 or 37 C.F.R. § 1.17, to Deposit Account No. 07-0153 of Gardere Wynne Sewell LLP and reference Attorney Docket No. 129843-1102.

In the event that any additional time is needed for this filing, or any additional time in excess of that requested in a petition for an extension of time, please consider this a petition for an extension of time for any needed extension of time pursuant to 37 C.F.R. § 1.136 or any other section or provision of Title 37. Applicants respectfully request that the Commissioner grant any such petition and authorize the Commissioner to charge the Deposit Account referenced above. Please credit any overpayments to this same Deposit Account.

This is intended to be a complete response to the Office Action made final, mailed on May 23, 2007 and the Advisory Action mailed September 19, 2007.

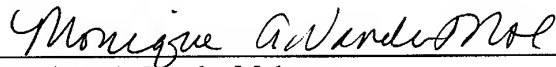
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Application No. 10/648,585

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**Please direct all correspondence to the practitioner listed below at Customer No. 60148.**

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